

Intellect's Energy Group's Views on Measuring of Energy Consumption In TV Displays

Please be advised that Intellect, in cooperation with its member companies and some other industry stakeholders have, through collective negotiation and experimentation, formed a number of views that surround the establishment of a more repeatable and simplified method of measuring energy consumption in TV Displays that could include all display technologies.

Intellect held a one-day workshop in May 2005 where a measurement methodology was demonstrated on TVs that featured a number of different screen technologies that used a signal source that was supplied by a DVD. The disc was played on a normal commercially available DVD player.

As a follow up to the workshop a number of experiments were carried out using a similar method of measurement on a single receiver in a number of different manufacturers laboratories. This part of the project was referred to as the 'Round Robin Test'.

In May 2006 Intellect held a follow up meeting of makers and stakeholders to discuss the round robin test results. During the meeting a number of views were developed that we wish to share and are set out below.

The Test Duration

It was assumed that the signal content would be a short sequence that is repeated, and the cycle duration would be less than 5 minutes. This being the case, the minimum periods of measurement should be 15 minutes. It was also recommended that the passive standby measurement should last around the same duration.

For on measurement the receiver should be warmed up for a period of 1 hour to allow the sample to stabilise. Some display technologies LCD for example drifted dramatically as warm up progressed.

The Signal Source

It was considered that a DVD could be used as a test medium and played by a commercially available player, but a test sequence would need to be included on the DVD (colour bars for example) to ensure that black and peak white levels on the composite video out-put terminal corresponded to 0.3 volts and 1 volt respectively were presented.

The Signal Content

It was the view of the group that international harmony was a vital part of this type of methodology and so the video content could contain any PAL or NTSC coded signal sequence with average luminance levels varied from 15 to 45%. However both 16:9 and 4:3 signals should be included onto the test DVD.

Connections

It was found that far more repeatable results the composite video output connection via an RCA or SCART connector should be used because some RGB outputs from DVD players varied on output level from sample to sample.

The Sound Settings

By experiment the sound level in the TV was found not to be significant for energy consumption measurement and so sound level in the receiver set to minimum was recommended for this test method

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The Receiver Settings

After a lot of difficult discussion it was decided to recommend the following:

Where a TV installation sequence defaults to a predetermined setting of colour brightness and contrast (a factory default) then this setting should be used for the tests.

Where a choice is offered to the viewer in the installation sequence the 'shop' or 'ECO' settings should be avoided. An average result should be calculated from the highest and the lowest results in the various option modes.

Where an automatic ambient light sensing mechanism is included extremes of effect of this feature should also be taken into account within the calculations of the average result.

Because there may be variations in measured results caused by these features the Manufacturer should make the receiver set up and calculation methodology available to enquirers upon request.

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A methodology should be added at a time in the future when the connection technology becomes better established.